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1 RECORD OF ORAL HEARING  
2 UNITED STATES PATENT AND TRADEMARK OFFICE

3  
4 BEFORE THE BOARD OF PATENT APPEALS  
5 AND INTERFERENCES  
6

7  
8 *Ex parte* DOMINIQUE LOUBINOX  
9

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11 Appeal 2009-012428  
12 Application 10/068,857  
13 Technology Center 1700  
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16 Oral Hearing Held: April 15, 2010  
17  
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19 Before BRADLEY R. GARRIS, CHUNG K. PAK and MARK NAGUMO,  
20 Administrative Patent Judges.  
21

22  
23 ON BEHALF OF THE APPELLANT:  
24

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1           The above-entitled matter came on for hearing on Thursday,  
2 April 15, 2010, commencing at 10:25 a.m., at the U.S. Patent and Trademark  
3 Office, 600 Dulany Street, 9th Floor, Alexandria, Virginia, before Lori B.  
4 Allen, Notary Public.

5           JUDGE GARRIS: Good morning.

6           MR. KOSCHMIEDER: Hello.

7           JUDGE GARRIS: Sir, as you know, you have about 20  
8 minutes. Would you please begin?

9           MR. KOSCHMIEDER: Okay.

10          Well, if it pleases the Board, I will start with a general  
11 description of the invention, and move on to the rejection, and how the  
12 invention and aspects of the claims distinguish the claimed invention from  
13 the cited art.

14          First, what I'd like to do is draw your attention to the first page  
15 of the specification. We have a description of certain aspects of the  
16 invention, and that description includes some text, which distinguishes at  
17 least one aspect of the invention from processes which use different  
18 materials, in particular fabric-type materials.

19          And I am pointing in the original specification, page 1, it will  
20 be paragraphs 2 and 3, beginning there at about line number 8. Reading the  
21 last lines, it looks like lines 16 through 19, "The structures used for  
22 producing the sheets usually not being the threads, as such, but complex  
23 structures incorporating the threads, and requiring prior processing steps."

24          That is a description of prior art processes, which make  
25 composite materials.

1           The reason I bring that to your attention, I think it describes a  
2 very important aspect of the invention in that the process, one, or at least one  
3 aspect of the process, is that you are not required to use a fabric to form the  
4 composite.

5           So in the specification clearly, we've described an embodiment  
6 of the invention, which has advantages over what I will call fabric-based  
7 processes.

8           Now the question is: How was that embodied, or how was that  
9 shown in the claims? Well, there are several requirements of the claims,  
10 which reflect those features.

11           Looking at Claim 30, in particular lines 12 and 13 -- and I'm  
12 reading from page 8 of the Claims Appendix of the Appeal Brief -- Claim 30  
13 states, "Wherein the threads of the first layer, second layer, and third layer  
14 are separate and unconnected."

15           So that is one important feature of the claims, which reflects the  
16 description of the invention I just described in that the process is a  
17 non-fabric-based process for making a composite sheet.

18           So finishing, "from threads in any other layer." That is one  
19 aspect.

20           Now reading on page 9 of the Claims Appendix from the  
21 Appeal Brief, line 6 and 7, "Wherein the composite sheet comprises solely  
22 the first bundle of parallel threads, the lap of threads, and the second bundle  
23 of parallel threads."

24           So that is the second aspect of the invention that's important in  
25 distinguishing the claims from the cited art.

1           Now what the Examiner has done -- obviousness in view of a  
2   number of references that include a reference to Middleman. And  
3   Middleman is cited as the primary reference.

4           There are a number of differences between Middleman and the  
5   claimed invention. And just to begin, I think one thing that's important to  
6   point out is that the Middleman patent describes a process that is  
7   distinguished from the non-fabric processes that we describe in our  
8   specification, and which is reflected in our claims.

9           And in particular, Middleman has a long discussion, columns 1  
10   and 2, beginning at about line 29 in column 1, and then going through  
11   column 2, where he contrasts fabric-based processes from non-fabric-based  
12   processes.

13           To make a long story short, Middleman is describing a process  
14   that must include a fabric component; that is, whatever composite sheet is  
15   made in the Middleman process is one that is made by using some fabric  
16   material, which is impregnated with some matrix material.

17           So right away, we see a big difference between the primary  
18   reference and the claimed invention.

19           JUDGE GARRIS: I'm not sure I do see that.

20           MR. KOSCHMIEDER: I'm sorry --

21           JUDGE GARRIS: I don't see where Middleman is describing I  
22   guess what you are referring to as a woven fabric. That discussion in  
23   Middleman with regards to woven fabric in column 22, as you point out, is a  
24   discussion of the prior art. Middleman -- seems to instead direct you to  
25   layers, which are not, in fact, interwoven one with the other.

1           MR. KOSCHMIEDER: Your Honor, you're correct. Pardon  
2 me, I misspoke. The Middleman invention is, in fact, one in which they use  
3 a non-woven material.

4           I had misspoke in saying that his description there is actually  
5 one where he distinguishes from, as you say, prior art in which there are  
6 woven materials. Reading, for example, column 1, lines 30 and 31, "There  
7 are certain drawbacks to the use of reinforcing fibers in the form of woven  
8 fabrics."

9           So the distinction, more correctly put, is that Middleman  
10 describes a process that is different from the secondary references. I'll talk  
11 about that aspect in just a moment.

12           There is still an important difference between Middleman and  
13 the claimed invention. As it's set forth in the Appeal Brief, in fact, there is --

14           JUDGE GARRIS: Let me just -- is Middleman -- disclose the  
15 three layers that are separate and unconnected, and therefore not woven?  
16 Exactly what's the difference, the critical difference between Middleman and  
17 the claim?

18           MR. KOSCHMIEDER: The critical difference between  
19 Middleman and the claim is the use of -- and I'm going to call it  
20 impregnation device -- that may be most clearly shown in Figure 1 of  
21 Middleman, which was reproduced on page 5 of the Appeal Brief.

22           So what Middleman is doing is he takes a number of fibers or  
23 threads, and then passes them through this impregnation device. And that's  
24 identified as it's kind of a rectangular device in Figure 1 of Middleman.

25           The purpose of that impregnation device is to add the matrix  
26 material to whatever fibers are passing through the process.

1           So in the claim process, where we have this requirement that  
2 the first -- let me read it, so I speak accurately -- "that the composite sheet  
3 comprises solely the first bundle of parallel threads, the lap of threads and  
4 the second bundle of parallel threads, that would then be violated by the  
5 impregnation device, identified by Reference Numeral 15 in Middleman's  
6 Figure 1.

7           Because that would be adding some matrix material, perhaps in  
8 the form of a liquid -- I don't know what -- but that's in violation of our  
9 claim with respect to the composite structure that is formed.

10           JUDGE GARRIS: I think in Middleman, the element 15 you  
11 have alluded to is -- for example resin, that the thermoplastic resin material  
12 that is used to interconnect the two other layers of Middleman, of  
13 course -- first bundle of parallel -- whereas -- employ what you describe as a  
14 second combination of threads that includes thermoplastic organic material  
15 separate from the other layers, Middleman employs thermoplastic -- instead  
16 of a separate layer of --

17           And for that distinction, the Examiner relies upon a secondary  
18 reference, the Examiner is suggesting that instead of using a thermoplastic  
19 melt, as Middleman does, it would have been obvious to use a  
20 thermoplastic -- layer in order to form the composite of Middleman.

21           And he relies upon the secondary references in support for that  
22 obvious --

23           And so please describe to us why you believe the Examiner's  
24 reliance on the secondary reference is really -- his conclusion of --

25           MR. KOSCHMIEDER: Well, just to address your comments,  
26 and to leave, sort of break from my comments from Middleman, now in this

1 aspect is where the Middleman's distinguishing of woven materials from  
2 non-woven materials is important.

3 If we look at the prior art that was cited, the secondary  
4 references in particular, we see devices that -- not devices, rather, but fibrous  
5 materials that are fabric type.

6 So just beginning, because I have it here in front of me, first,  
7 with the UK patent, which I believe the Examiner identifies as Senior, right  
8 in the abstract, it's very clear that he's talking about a fabric.

9 In contrast, Middleman talks about having to use some  
10 non-woven material. And further in contrast to the claimed invention, we  
11 require that our first, second, and third layers are separate and unconnected  
12 threads.

13 So there is this jump that is made by the Examiner, saying that  
14 one of skill in the art would turn to this woven material as inspiration to  
15 modify Middleman, who expressly distinguishes his process from such  
16 fabric-based processes.

17 So that is one basis for pointing out that the secondary  
18 references would not be, in fact, combined with the primary reference,  
19 Middleman.

20 JUDGE GARRIS: Could you please point to the section of  
21 your Principal Brief, which makes that very argument you have just  
22 presented?

23 MR. KOSCHMIEDER: Well, the Principal Brief primarily  
24 points out that the modification of Middleman in the manner asserted by the  
25 Examiner as obvious, wouldn't make sense, because you would essentially



1 render Middleman inoperable for the reason that you would taking away the  
2 impregnation device.

3 In the Examiner's Answer to the Principal Brief, the Examiner  
4 brought forth some points with respect to the combination of the secondary  
5 references and the primary reference.

6 In the Reply Brief that was filed in this case, there is a  
7 discussion with respect to the secondary references and how the disclosure  
8 and description of fabric-based or woven type materials as a composite  
9 structure are disclosed, which are different from the Middleman non-woven  
10 materials.

11 JUDGE GARRIS: So it's in the Reply Brief that you make the  
12 argument you just presented to us at the oral hearing.

13 MR. KOSCHMIEDER: That is one place where this argument  
14 has come up. This argument has also been made earlier to the Examiner  
15 with respect to distinguishing Middleman from the cited art.

16 JUDGE GARRIS: What I think I'm assuming, when you say it  
17 was also brought up to the Examiner, this argument was made to the  
18 Examiner previously, are you referring to the prosecution that was  
19 conducted before the Examiner?

20 MR. KOSCHMIEDER: That is correct.

21 JUDGE GARRIS: What I'm interested in is whether, in fact,  
22 this argument we're discussing was actually made in a reasonably  
23 specific -- in the Principal Brief. And if not, why not?

24 MR. KOSCHMIEDER: The Principal Brief focuses on the  
25 distinction of Middleman with the claimed invention with respect to the  
26 impregnation device, that is correct.

1           That at the time was the argument that appeared to be the most  
2 persuasive for overcoming the rejection.

3           I can quickly look through the Principal Brief, to see if there is  
4 an allusion to aspect of the difference between the claimed invention and  
5 the -- or the difference between Middleman and the cited art.

6           Well, my point in reply would be that Middleman is  
7 distinguished with respect to the alleged obvious modification on the basis  
8 that it would essentially change the principle of operation of the Middleman  
9 process.

10           That is an argument that holds both for the removal of the  
11 impregnation device and with respect to using a fabric-type material, such as  
12 that described in the secondary references in the Middleman process, which  
13 is one described as a non-fabric-based process.

14           JUDGE GARRIS: Well -- understand that in the Principal  
15 Brief, you did argue that the proposed modification of Middleman would  
16 change its principle of operation.

17           But I am concerned that in the Principal Brief, there was no  
18 reasonably specific argument addressing what you now argue is a deficiency  
19 of the rejection, namely that the secondary references are directed to woven  
20 fabrics, which Middleman does not use in Middleman's invention.

21           And so again, I want to make clear that that argument seems to  
22 have been made only in the Reply Brief. And the question that we have to  
23 address now is why was it not made in the Principal Brief?

24           This matter is of concern to us, because the Examiner makes in  
25 the Answer express statements that, in fact, the Appellant -- I'm now going  
26 to quote from page 12 of the Answer, where the Examiner says, "It should

1 be noted that the Appellant failed to address any of the teachings of  
2 O'Connor and -- et cetera, the use of the secondary reference.

3 And therefore the Examiner considers that the Appellant is in  
4 agreement with the Examiner's interpretation --

5 And so it seems as though the Examiner is  
6 making -- statement -- the point you now make here at oral hearing and what  
7 you'd subsequently made in you Reply Brief, subsequent to the  
8 Examiner's -- where you critiqued the secondary references as being directed  
9 to woven fabric, is in fact an argument -- made in the --

10 And again, then, I'll get back to the point. If it was not made in  
11 the Principal Brief, why was it not so made?

12 The regulation seems to require that you put all of your  
13 arguments directly in the Principal Brief, so that everyone, including the  
14 Examiner, has it there in the first instance, so that the arguments can be --

15 MR. KOSCHMIEDER: Yes. Thank you for pointing that out.  
16 And it's somewhat odd that the Examiner would argue that there would be  
17 some implication that we were in agreement with that.

18 The Examiner and I discussed the case on numerous occasions.  
19 Based upon those discussions, based upon the prosecution history of the case,  
20 the critical issue was the modification of Middleman. For that reason, the  
21 Principal Brief focused on modification of the Middleman process according  
22 to the impregnation device, rather than the difference between the fabric and  
23 non-fabric-type materials.

24 Now in receiving the Examiner's Answer, the Examiner decided  
25 to put emphasis on the secondary references. So it was obviously in the  
26 Applicants interest to point out that those arguments were not agreed to by

1 Applicants, and that there is no agreement that the teachings of the  
2 secondary references are somehow surrender with respect to their meaning  
3 in the claimed invention.

4 JUDGE GARRIS: Leaving that aside, then, for the moment,  
5 your argument in the Principal Brief that everyone understands is that the  
6 Examiner's proposed modification -- render Middleman inoperative, I  
7 believe is the argument that -- something to that effect.

8 MR. KOSCHMIEDER: That is correct, or change its principle  
9 of operation.

10 JUDGE GARRIS: Right. Would you care to explain to us the  
11 basis for your position on that?

12 MR. KOSCHMIEDER: Well, Middleman describes one  
13 method by which a matrix material is added to the fabric or the thread. That  
14 is the impregnation device.

15 Middleman takes the impregnation device, or uses the  
16 impregnation device, apparently to add a liquid matrix material to threads  
17 moving in a continuous fashion.

18 So the Examiner believes that one of skill in the art would  
19 exchange the impregnation device for the thermoplastic-containing thread of  
20 the presently claimed invention.

21 But the difficulty with that is you're moving from the liquid to  
22 the solid stage, where Middleman uses a liquid matrix material and an  
23 impregnation device, the claimed invention, and the secondary references  
24 have a mixture of a thermoplastic resin in a solid state, and a reinforcing  
25 fiber in a solid state.

1                   So the question is, how can going from a liquid state to a solid  
2 state be so obvious? And what would that do to the principle of operation of  
3 the Middleman process?

4                   Well, what it does is it completely changes it. Instead of adding  
5 a liquid material to a collection of fibers, you're now taking only fibers in  
6 their solid form. And that is a very different way of carrying out a process  
7 by which you form a matrix in a composite material.

8                   JUDGE GARRIS: Let me just clarify this, if I may. Now  
9 alternately, isn't your -- combination heated up and pressure applied so as to  
10 thermally fix the layers together by melting the thermoplastic material, and  
11 in that way, adhering the composite layers together?

12                  MR. KOSCHMIEDER: That is correct. It is a process by  
13 which solid threads are combined. They're heated such that a matrix can,  
14 let's say -- I'm going to use the word "encase," just to give you a description  
15 of what is happening -- to encase the fibers.

16                  And then those fibers, the encased fibers, are then cooled, and  
17 you have a solid composite.

18                  JUDGE GARRIS: Now in contrast, Middleman, instead of  
19 applying solid fibers of thermoplastic material and then heating them to  
20 unite the upper and lower layers, instead applies a melt to the thermoplastic  
21 to unite the upper and lower layers.

22                  MR. KOSCHMIEDER: I wouldn't go so far as -- perhaps he  
23 also uses a curable liquid material that is not melted, but in principle I --

24                  JUDGE GARRIS: No, it is a melt. He does --

1           MR. KOSCHMIEDER: Then, in that respect, if he's disclosing  
2 a melt material added to fibers, then that is correct. One could envision that  
3 perhaps he uses a curable liquid material that doesn't require melting.

4           In any case --

5           JUDGE GARRIS: The point is that ultimately the product that  
6 Middleman desires is an upper and lower layer of threads that are  
7 interconnected by way of thermoplastic resin, just as you do.

8           And so why are you correct in arguing that Middleman's  
9 principle of operation is -- by using instead of a thermoplastic melt, a  
10 thermoplastic layer of fibers between the upper and lower layers in order to  
11 subsequently melt that thermoplastic layer --

12          MR. KOSCHMIEDER: Well, as I mentioned, Middleman adds  
13 a liquid material to moving threads. So, I guess I would say he remotely  
14 adds it, meaning that the material is something added separately to the thread  
15 structure, after the thread structure is formed.

16          In comparison, our matrix material is present in the thread  
17 structure. So to modify Middleman, to get to the claimed invention, you  
18 have to take a big step. You go from what I'm going to call "remote addition  
19 of a liquid material," to the addition of a solid material that is a part of the  
20 thread structure.

21          JUDGE GARRIS: Isn't that exactly what the Examiner says are  
22 secondary references of teaching here? And in fact, according to the  
23 Examiner, the secondary references teach that there are advantages to using  
24 thermoplastic solid threads, rather than a thermoplastic melt?

1                   MR. KOSCHMIEDER: Perhaps there are advantages described  
2 for fabric-type materials. There are not advantages described for  
3 non-fabric-type materials.

4                   The secondary reference, where they disclose the use of some  
5 reinforcing solid fiber in combination with a thermoplastic fiber, are directed  
6 to different types of fabric substrates; or in the case of the NASA tech brief,  
7 they're just directed to a particular what might itself just be a cured fiber, or  
8 a composite fiber, for lack of a better description.

9                   JUDGE GARRIS: Well, counselor, we're really out of time  
10 now. And so let me ask my -- Judge Pak, do you have any questions? Judge  
11 Nagumo?

12                  Sir, we're out of time, and we have no further questions of you  
13 today.

14                  Let me ask the court reporter, do you have --

15                  No questions then.

16                  MR. KOSCHMIEDER: Thank you.

17                  JUDGE GARRIS: Thank you very much.

18                  Whereupon, at 10:51 a.m., the proceedings were concluded.

19

20